

PATENT APPLICATION

**RESPONSE UNDER 37 CFR §1.116
EXPEDITED PROCEDURE
TECHNOLOGY CENTER ART UNIT 1795**

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the Application of

Nicolas SARRUT

Group Art Unit: 1795

Application No.: 10/534,456

Examiner: H. KAFIMOSAVI

Filed: May 27, 2005

Docket No.: 123883

For: MICROFLUIDIC DEVICE WHEREIN THE LIQUID/FLUID INTERFACE IS
STABILIZED

REQUEST FOR RECONSIDERATION AFTER FINAL REJECTION

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

In reply to the August 11, 2008 Office Action, reconsideration of the above-identified application is respectfully requested in light of the following remarks. Claims 8-14 are pending in this application.

Claims 8-14 were rejected under 35 U.S.C. §103(a) over U.S. Patent No. 7,016,560 to Ticknor et al. (hereinafter "Ticknor") in view of U.S. Patent No. 5,593,565 to Ajdari et al. (hereinafter "Ajdari") and U.S. Patent Application Publication No. 2004/0072047 to Markoski et al. (hereinafter "Markoski"). Claim 10 was also rejected under 35 U.S.C. §103(a) over Ajdari in view of Ticknor and Markoski. The rejections are respectfully traversed.

The applied references do not teach, nor can they reasonably be considered to have suggested, all of the features of claim 8. To support this argument, Applicant herein (1) explains why the applied references do not disclose or suggest all of the features of claim 8 and (2) asserts that it would not have been reasonably predictable to combine the references in order to suggest all of the features of claim 8.

**(1) THE APPLIED REFERENCES, TAKEN AS A WHOLE, FAILS
TO DISCLOSE OR SUGGEST ALL OF THE FEATURES OF CLAIM 8**

Claim 8 calls for a microchannel that includes at least two zones, respectively designed to contain the at least one liquid and the at least one fluid non-miscible with the liquid, at least one of the two zones is formed by a space corresponding to the width of the at least one electrode arranged on only one part of the first wall.

Page 5 appears to admit that Ticknor and Ajdari fails to disclose or suggest the above features of claim 8, and appears to instead rely on Markoski.

Ticknor teaches a microchannel for use in the context of an optical waveguide for various purposes including switching and attenuation of optical signals controlled by movements in minute volumes of fluid (col. 3, lines 19-42). With reference to Fig. 9, Ticknor discloses a microchannel 900 with fluids 901 and 902 formed between opposing electrodes 903 and 904 (col. 24, line 59 - col. 25, line 8). Ticknor, however, does not teach that at least one of any alleged two zones is formed by a space corresponding to the width of the at least one electrode arranged on only one part of the first wall, as recited in claim 8.

Ajdari teaches a device for separating particles contained in a fluid (title). With reference to Figs. 1, 5, 9 and 10, Ajdari teaches a microchannel C with electrodes 3 and 4 forming walls on opposite sides of the microchannel and that span the entire length of the respective walls of the microchannel. Ajdari, however, does not disclose at least one electrode arranged on only one part of a first wall or that the microchannel includes at least

two zones, at least one of the two zones is formed by a space corresponding to the width of at least one electrode arranged on only one part of the first wall.

Markoski's Fig. 8 discloses a full cell system with two zones that are designed to contain fuel steam and oxidant steam. However, neither of the two zones is formed by a space corresponding to the width of the corresponding anode or cathode arranged on the part of the wall. There is in fact a gap between the anode and the cathode, and the interface between the two liquids is arranged at the middle of this gap (Fig. 8A, IDM). Therefore, each zone containing a liquid is larger than a corresponding electrode. In addition, Markoski's anode and cathode are not arranged on a first wall and a second wall such that they face each other. Markoski thus fails to overcome the deficiencies of Ticknor and Ajdari in that Markoski also fails to disclose or suggest at least one electrode arranged on only one part of a first wall or that the microchannel includes at least two zones, at least one of the two zones is formed by a space corresponding to the width of at least one electrode arranged on only one part of the first wall.

In addition, the anode and the cathode in Markoski do not have the same function as the electrodes according to claim 8. The anode and cathode according to Markoski are used in a fuel cell. By definition, a fuel cell is an electrochemical conversion device that produces electricity from fuel (on the anode side) and an oxidant (on the cathode side), which react in the presence of an electrolyte. In Markoski, the fuel cell operates without an electrolytic membrane and then with a direct exchange of protons between the fuel stream and the oxidant stream.

(2) **IT WOULD NOT HAVE BEEN REASONABLY PREDICTABLE TO COMBINE THE THREE REFERENCES**

The claimed invention is not reasonably predictable from the combination of all of Ticknor, Ajdari and Markoski. The Office Action proposes to rearrange the parts of Ticknor,

Ajdari and Markoski without providing the requisite reason why a person of ordinary skill in the art, without the benefit of Applicant's specification, would have rearranged the parts. See MPEP §2144.04(VI.C). Applicant provides the following examples.

Page 5 of the Office Action conclusorily asserts that it would have been obvious to modify Ticknor with Ajdari and Markoski for the benefit of simplifying the microfluidic device, making it easier to control and optimizing electrode area activity chemical composition. However, attempting to simplify the microfluidic device and making it easier to control and optimize electrode area activity chemical composition does not appear to be relevant to Ticknor. Page 5 of the Office Action simply refers to the specific advantages and objects of Ajdari and Markoski. In addition, there are various known methods of simplifying a microfluidic device and attempting to make it easier to control and optimize electrode area activity chemical composition, none of which suggest using Ajdari and Markoski.

In addition, a statement that modifications of the prior art to meet the claimed invention would have been well within the capabilities of one of ordinary skill in the art at the time the claimed invention was made, because the references relied upon allegedly teach that all aspects of the claimed invention were individually known in the art, is not sufficient to establish a *prima facie* case of obviousness without some objective reason to combine the teachings of the references. See MPEP §2143(IV). The Office Action's simple recitation of the advantages and objectives of Ajdari and Markoski fails to articulate an adequate rationale for combining individual pieces of structure from each of Ticknor, Ajdari and Markoski in order to reconstruct claim 8. See MPEP §§2141-2143. The Office Action fails to confirm the adequacy for combining all three references.

Furthermore, it is improper to combine all of Ticknor, Ajdari and Markoski in order to suggest the above features of claim 8 because such combination involves impermissible hindsight using knowledge gleaned only from Applicant's disclosure. Such hindsight

reconstruction of the claimed invention is improper. See MPEP §2145(X)(A). Ticknor, Ajdari and Markoski are all directed to different technical fields. For example, Markoski is directed to fuel cells. It would not have been reasonably predictable to look to a fuel cell for Ticknor's microchannel that is used in the context of an optical waveguide, or Ajdari's device for separating particles in a fluid. In addition, in Markoski, there is no potential difference created by a voltage generator and applied between electrodes in order to stabilize an interface between two fluids. There appears to be no logical reason for one of ordinary skill in the art to seek out and combine individual pieces of structure from each of Ticknor, Ajdari and Markoski in order to reconstruct claim 8. The claimed combination would not have been obvious to try because there was not a finite number of identified, predictable potential solutions to a recognized problem or need. See MPEP §§2143(E) and 2143.02. Applicants assert that, given the circumstances, knowledge gleaned only from Applicant's disclosure was used, which is impermissible hindsight.

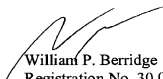
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In view of the foregoing, it is respectfully requested that the rejections be withdrawn.

In view of the foregoing, it is respectfully submitted that this application is in condition for allowance. Favorable reconsideration and prompt allowance are earnestly solicited.

Should the Examiner believe that anything further would be desirable in order to place this application in even better condition for allowance, the Examiner is invited to contact the undersigned at the telephone number set forth below.

Respectfully submitted,



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WPB:SMS/mcp

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